

REMARKS

Claims 1-10 are now pending in the application. Claims 11-20 have been withdrawn. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-4 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tovey et al. (USPN 6,231,565) in view of Matsunno et al. (USPN 5,061,839). This rejection is respectfully traversed.

Specifically, Applicant would like to point out that the (gap) height sensing means of Matsunno et al. is located on the processing head, but not directly within the laser processing head as contemplated by Applicant's invention. Precision is the ultimate factor in determining the quality of a work piece, and although the gap sensor of the '839 patent is proximal the tip of the laser, it is still positioned a specific distance away from the output. When measurements can be within ten thousandths of an inch, this distance can make an exponential difference in the quality of the part produced if the value read a predetermined distance from the processing head is even slightly off. Overcoming this shortcoming is a critical feature of Applicant's invention in that the measurement between the exact tip of the processing head and the work piece is measured. Claim 1 has been amended to more clearly point out and distinguish this feature and, therefore, Applicant believes claim 1 should be in condition for allowance over the Examiner's cited art, taken either alone or in combination. Reconsideration is respectfully requested.

Furthermore, since claims 2-4 and 9 are dependent upon claim 1, and are at least as limited in subject matter, they too should now be in condition for allowance.

Claims 1-4 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tovey et al. in view of Otsuki et al. (USPN 5,624,587). This rejection is respectfully traversed.

Applicant would like to respectfully reiterate that the '587 patent to Otsuki et al also fails to teach of a height sensor located within the laser processing head itself, but proximal the output of the laser head on the periphery of the processing head. By having a direct height sensor incorporated in the laser processing head at the position of the laser, variations in height of the work piece with respect to the laser processing position are overcome. This is a critical feature of Applicant's invention over the cited art taken alone or in combination, and claim 1 has been amended to more clearly point out and distinguish this feature. Therefore, Applicant believes claim 1 should be in condition for allowance over the cited art.

Furthermore, since claims 2-4 and 9 are dependent upon claim 1, and are at least as limited in subject matter, they too should now be in condition for allowance.

Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tovey et al. and Matsunno et al. or Otsuki et al. and further in view of Uchino et al. (USPN 5,374,804). This rejection is respectfully traversed.

For the sake of brevity, Applicant would like to reiterate that claim 1 has been amended to more particularly point out the features which comprise the present invention, and respectfully believes it should now be in condition for allowance. Furthermore, since claims 5-8 are dependent upon claim 1, and are at least as limited in subject matter, they too should now be in condition for allowance.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tovey et al. and Matsunno et al. or Otsuki et al. and further in view of Bishop (USPN 6,211,483). This rejection is respectfully traversed.

Again, Applicant would like to reiterate that claim 1 has been amended to more particularly point out the features which comprise the present invention, and respectfully believes it should now be in condition for allowance. Furthermore, since claim 10 is dependent upon claim 1, and is at least as limited in subject matter, it too should now be in condition for allowance, and reversal of this rejection is respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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